

REMARKS

Claims 1, 3 – 13 and 44 – 49 are now pending in the application. Applicants thank the Examiner for the allowance of claims 44 – 49. Applicants respectfully request that the Examiner reconsider and withdraw the rejection(s) of the remaining claims in view of the remarks contained herein.

DOUBLE PATENTING REJECTION

Claims 1 – 9 and 11 – 13 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 14 and 17 – 23 of copending USSN 10/169,638. Applicants submit that this rejection is improper as claims 14 and 17 – 23 of USSN 10/169,638 originated as claims 14 and 17 – 23 of the present application that were withdrawn in the present application, with other claims, in response to the Patent Office's restriction requirement mailed October 1, 2002. Nevertheless, to further prosecution, upon allowance of claims 1 – 9 and 11 – 13, applicants will submit a terminal disclaimer.

REJECTION UNDER 35 U.S.C. § 103

Claims 1 and 7 – 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Herman et al. (U.S. 5,907,205). Claims 3 – 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Herman et al. in view of Shramo. Claims 1 and 11 are the independent claims of this group. For the reasons discussed below, applicants submit that these claims are allowable.

Claims 1 and 11 are directed to a brushless DC motor. They require that the end turns of the coils that enclose the rotor assembly are “arranged to minimize any gap between respective ends of the rotor assembly and the end turns adjacent the respective ends of the rotor assembly.” Applicants submit that Herman et al. fails to disclose a brushless DC motor having coils so arranged.

The Examiner acknowledges that Herman et al. discloses that the end turns do not necessarily have to minimize any gap between respective ends of the rotor assembly and the end turns adjacent the respective ends of the rotor assembly. The Examiner then takes the position that Hermann et al. only recites that it is not necessary and that since Hermann et al. acknowledges that it well known to arrange the turns to minimize any gap between respective end of the rotor assembly and the end turns, it would thus have been obvious to one of ordinary skill in the art to so modify the structure disclosed in Hermann et al. But Hermann et al. teaches away from doing so in the structure disclosed in Hermann et al. Herman et al. states: “An important feature of the invention is based on our discovery that when the permanent magnet rotor is construed using material having an energy product in the range of 0.30 – 47 MGOe, these magnets generate such a large field, even in air, that the small gaps of a conventional motor design are not necessary and the wire wound cylindrical stator of the present invention is a viable alternative.” [Herman et al. col. 4, lines 36 – 42]. As such, applicants submit that Herman et al. teaches that his structure does not have minimized air gaps and that it is viable due to the use of the high energy product magnets. In other words, applicants submit that Herman et al. is teaching that his structure is not suitable for the conventional approach where the air gaps are minimized

as it become viable only through the use of the high energy product magnets. Thus, one of ordinary skill in the art one would not be led to modify the structure of Herman et al. to minimize any gap between the end turns of the coil and the rotor assembly because Herman et al. teaches away from doing so. Applicants submit that claims 1 and 11 are thus allowable.

Claims 3 – 10 depend directly or indirectly from claim 1 and claims 12 and 13 depend from amended claim 11, and are allowable for at least that reason.

Claim 10, which depends from claim 1, recites that the “permanent magnet is magnetized after the plurality of coils are wound.” The Examiner cites to Herman et al. col. 4, lines 36 – 42 as disclosing magnetizing the permanent magnet after the coils are wound. Applicants respectfully disagree. This section of Herman et al. reads:

An important feature of the invention is based on our discovery that when the permanent magnet rotor is constructed using material having an energy product in the range 0.30-47 MGOe, these magnets generate such a large field, even in air, that the small gaps of a conventional motor design are not necessary and the wire wound cylindrical stator of the present invention is a viable alternative.

Applicants submit that this section fails to address when the magnets are magnetized. Applicants submit that claim 10 is allowable over Herman et al. also for this reason.

CONCLUSION

Applicants believe that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this response is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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